

## FURTHER NOTES ON AUSTRALIAN COLEOPTERA, WITH DESCRIPTIONS OF NEW SPECIES.

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In this paper I offer to the Royal Society descriptions of thirteen species of South Australian *Coleoptera* that appear to have hitherto escaped notice, together with the redescription of an insect previously insufficiently described by me, and a note on the capture by Mr. J. J. East of a species doubtless introduced through the agency of commerce, but which has not, I believe, been previously recorded as Australian. I have also furnished some remarks on the structural characters of the front tibiæ of the *Scaritidæ*, pointing out the importance in determining the limits of *genera* and *species* of one of those characters that does not appear to have been observed by describers hitherto.

### SCARITIDÆ.

#### EUTOMA.

*E. Adelaidæ*, sp. nov. Angustum; parallelum; nitidum; supra nigrum, elytris splendide cæruleis, antennis palpis mandibulorum basi pedibusque plus minusve rufis; subtus nigrum, coxis abdomineque picescentibus; capite prothoraci latitudine æquali fortiter longitudinaliter utrinque sulcato, sulcis postice haud transversim productis, antice leviter convergentibus, supra frontem breviter profunde divergentibus; juxta oculos 2 punctis setiferis positis; prothorace subquadrato profunde canaliculato (canalicula marginem anticam haud attingente), intra angulos posticos transversim depresso, basi utrinque foveolato marginibus lateralibus leviter sinuatis; elytris lævibus secundum suturam depressis, postice utrinque puncto magno notatis; tibiis anticis externe fortiter bidentatis. Long.,  $1\frac{1}{2}$  mm.

This species does not appear to resemble closely any yet described except *E. lævis*, Cast., from which it appears to differ as follows:—It is smaller, the furrows on the head end posteriorly quite abruptly without any indication of a transverse impression (in *lævis* there is stated by M. Castelnau to be a line connecting the apices of the frontal furrows with the eye), the thorax is not at all longer than wide, but when measured carefully is found to be a minute fraction of a millimetre wider than long; there is no impression on the humeral angle of the

elytra. I cannot help so far participating in the views expressed by the Hon. W. Macleay (Trans. Ent. Soc., N.S.W., 1869, II., pp. 58, &c.) touching the accuracy of Count Castelnau's observations as to feel some misgivings in distinguishing this species from his *E. laevis*, but nevertheless it is certain that if the description of *E. laevis* is accurate, the present insect is not identical with it, and if it is inaccurate a new description is required even at the risk of supplying a name that will not stand. It will be observed also that the location of this species in *Eutoma* is inconsistent with the thoracic characters attributed to that genus, but nevertheless it is certain that *E. Adelaidæ* cannot be generically separated from the species previously attributed to *Eutoma*. I should, perhaps, add that the serial marginal punctures of the elytra are placed in *E. Adelaidæ* as follows on each elytron:—Two on the external portion of the anterior margin, six on the anterior third part of the lateral margin, two close to the apex, and three at wide intervals on the intermediate portion; exterior ridge of anterior tibiæ with two teeth above the large apical ones, neither of which is visible when the tibia is viewed from perpendicularly above it; the lower one is small, and placed on the hinder declivity of the upper large tooth; the upper one is scarcely discernible except by its seta; the inferior ridge bears three small teeth.

Recently added to the South Australian Museum; taken at Ashton, near Adelaide, by Mr. Copeland.

#### CARENUM.

A recent study of the anterior tibia of a number of the species forming this genus has satisfied me that some of the expressions ordinarily used in describing the denticulation of that limb are wanting in accuracy, and that a thorough investigation of the matter might be of great assistance in determining the limits of closely allied species, or even in the arrangement of genera. Unfortunately the material at my command is not sufficient for such a purpose, but I am persuaded it would be well worthy the attention of some specialist in the genus who was in a position to examine a long series of species. If the anterior tibia of a *Carenum* be carefully examined it will be found that the central apical portion of the under surface consists of a flattened or concave space which terminates in a point of various shapes, the said pointed portion forming the lower portion of the cavity into which the tarsus is inserted. I shall call this the "apical plate" of the tibia. The inner edge of this plate if followed is seen to consist of a smooth ridge (*i.e.*, smooth in all the species I have examined), which passes up the tibia, encircles the upper internal spine of the tibia, and then turns downwards towards

the apical internal spine. The external edge of the "apical plate" runs backward (*i.e.*, up the tibia) for a length varying with the species as a smooth ridge and then becomes serrated, each serration bearing a long seta. This ridge I shall call the "inferior ridge." From the anterior external corner of the "apical plate" there rises a line, which can be traced as a distinct rib or ridge along the following course, viz., around the whole contour of the under surface of the two large apical external spines of the tibia, and then backwards (*i.e.*, up the tibia), at first forming the external margin of the tibia and then (higher up) passing to the under side until it joins the "inferior ridge" of the tibia at a variable distance (but never very far) from the apex of the femur. The portion of this ridge above the two large apical spines, like the "inferior ridge," is cut into a series of denticulations, of which those on the part where it forms the external edge of the tibia are, if they are present at all, pointed outwards, while those on the portion that is underneath the tibia are pointed downwards. Each of the denticulations of this "exterior ridge" (as I shall call it) bears a long stiff seta.

I was led to make this exact observation of the structural characters in the front tibia of *Carenum* by experiencing the unsatisfactory nature of the expressions "bidentate" and "tridentate" as applied to the external margin of those limbs. I found, for example, that two specimens of the same insect might appear to oscillate between being "bi" or "tri" dentate in that respect, according to the position in which the anterior legs were set; and further, comparing *C. lævigatum*, MacL., and *C. Odewahni*, Cast. (placed by Mr. Macleay in different genera mainly on this character), I failed to discover any difference in the dentation of their anterior tibiæ.

As far as I have been able to examine the species of *Carenum* I find that the "exterior ridge" in them all possesses either three or four distinct denticulations in the upper portion (*i.e.*, the portion above the two large apical teeth), and that the size and position of the denticulations varies considerably, but is tolerably constant in examples of the same species. In some species they are larger than in others; in some the lowest or the lowest two are a good deal directed outwards (because the exterior ridge limits the tibia externally for a certain distance before passing to the under surface), so as to be partially visible when viewed from directly above, but in *all* that I have examined there are at least three teeth to be seen above the apical two if the tibia be viewed from a point a little outside that from which it would be looked down upon perpendicularly. Thus the distinctions founded on the dentation of the "exterior ridge" are for the most part distinctions of *degree*, and by no

means exact. I find, however, that more satisfactory results are arrived at in respect of the species I have studied by an examination of the setiferous teeth on the "inferior ridge."

I will now proceed by way of illustration to mention the characters of the external and inferior ridges in several species of *Carenum*, remarking, however, that *C. anthracinum*, Macl., and *C. lævigatum*, Macl., are the only species of which I have been able to examine a long series.

*C. anthracinum*, Macl.—Exterior ridge with four teeth, all feeble—the topmost extremely so; all invisible when the tibia is looked down upon quite perpendicularly. Inferior ridge bearing six or seven well-defined teeth, which commence far back from the tarsus.

*C. lævigatum*, Macl.—Exterior ridge with four very well-defined teeth, the lowest two of which are more or less visible when the tibia is looked down upon perpendicularly. Inferior ridge with ten well-defined teeth, which commence far back from the tarsus.

*C. Odewahni*, Cast.—Exterior ridge with only three distinct teeth, of which the lowest is a little visible when the tibia is looked down upon perpendicularly; a fourth is barely discoverable, but is indicated by the presence of its seta. Inferior ridge with twelve teeth, which commence close to the tarsus.

*C. ineditum*, Macl.—Exterior ridge very similar to that of *C. anthracinum*. Inferior ridge with nine teeth, which commence far back from the tarsus, the topmost barely traceable except by its seta.

These examples will be quite sufficient to illustrate what I conceive to be the advantage of giving more attention than has been given hitherto to an accurate study of the anterior tibia in *Carenum*, and I have not access, unfortunately, to so large a series of species as would render an exhaustive and complete study of the genus possible for me.

Before leaving the subject I will just add a few notes on the application of the characters of the anterior tibia to the distinction of the Australian genera of *Scaritidæ*.

*Monocentrum* is a genus of which I have no example, but probably its tibial structure is peculiar.

In *Conopterum* (two species only have been examined) the exterior ridge seems to contain two teeth and an obsolete indication of a third, while the inferior ridge commences as in *Carenum*, but contains only about three teeth, and is non-serrate in its upper half.

In *Carenidium* I have been able to examine only a single species, but it has the exterior ridge very ill-defined, and quite devoid of teeth above the apical large teeth, and six blunt obscure teeth on the inferior ridge.

In *Eutoma* the tibiæ, so far as I have been able to observe, resemble those of *Carenum*, although I have not seen any species in which the inferior ridge is so well defined as in *Carenum*, or has more than four teeth.

I do not find that the tibial characters of *Neocarenum* differ in a manner likely to be generic from those of *Conopterum*.

My very limited opportunities of examining anterior tibiæ in Mr. Macleay's new genera *Carenoscaphus* and *Calliscapterus* point to the probability that the former differs from *Carenum* in this respect only by the feebler development of the inferior ridge, and the latter by the exceedingly strong development of the same, together with the commencement of its serration nearer to the apex of the tibia.

In *Laccopterum* the "apical plate" of the tibia is not produced in the middle as in the preceding genera, and the serration of the inferior ridge does not extend above its apical half.

*Teratidium* is unknown to me.

The structure of the anterior tibiæ in *Euryscaphus* does not appear to distinguish that genus from *Carenum*.

In *Scaraphites* the structure of the anterior tibia differs entirely, the exterior ridge not passing to the underside of the tibia, and the inferior ridge (instead of the external edge of the apical plate) passing round the upper internal spine.

The tibial structure in *Geoscaptus* is very like that of *Carenum*, except that the apical plate is differently shaped.

In *Scolyptus* and *Clivina* the structure is so different as to be hardly capable of comparison with that of *Carenum*.

I must again remark that my observations are founded on so small a series of specimens that it is quite likely an examination of species I have not seen may considerably modify the conclusions to be arrived at, but I think my observations thoroughly establish the importance of a study of the characters I have discussed.

Another character of *Carenum* that appears to me capable of being used to advantage in the discrimination of species is to be found in the form of the elytral margin at the shoulder, which varies to some extent, but appears constant in individuals of the same species. In every *Carenum* known to me the lateral margin of the elytra is conspicuously thickened (or increased) at the humeral angle, but not always in the same way. In the majority of species there is a mere thickening in a vertical direction (as in *C. anthracinum*, Macl.), generally more or less pointed at the apex, and having somewhat the appearance of an ill-defined erect tooth, while in others (e.g., *C. lævigatum*, Macl.) the thickened part is bent over, with its point directed more or less towards the middle of the suture, as though the shoulder of the elytron were "dog's-eared." This distinction is unques-

tionably a fine one, but in a genus so difficult as *Carenum* any tangible character is of importance.

I shall now proceed to furnish detailed descriptions of the two species of this genus that are most commonly found in South Australia, and to add descriptions of several new species that have come under my notice.

*C. anthracinum*, Macleay. This appears to be the most abundant and widely-distributed *Carenum* in South Australia. I have the following localities noted for it, viz., Adelaide, Mallala, Sedan, Port Lincoln, Eucla. As I have examined, and have before me, a large number of specimens, it will perhaps be interesting to South Australian collectors to possess a somewhat fuller description than the original one. A typical specimen is as follows:—Deep black, with the palpi pitchy, except at their apex, where they are yellowish, the antennæ often pitchy at the base, and more or less ferruginous in the apical part (or even wholly dull ferruginous), and the tarsi pitchy red; the lateral margins of the elytra of a violet colour (often only very faintly, sometimes not at all), which in some specimens suffuses the whole epipleuræ. Head with the frontal furrows well marked, diverging from about their middle strongly forward, and more or less gently backward, and ending posteriorly considerably in front of the level of the back of the eye. Considerably behind the termination of the furrows the head is traversed by an obscure transverse impression. The thorax at its widest part (which is about the middle) is about one-third as wide again as its greatest length (*i.e.*, as eight to six), is widely and gently emarginate in front, has the sides very gently rounded from the front to behind the middle, and then converging in a sinuate manner to the base, which is gently emarginate (not at all lobed), and a little more than half as wide as the anterior margin. It has a longitudinal channel, tolerably well marked, which does not quite reach either the apex or base, and is limited in front of the base by a somewhat arched transverse impression, this transverse impression forming the anterior boundary of a narrow flattened space which runs across the whole base of the thorax. It has a very narrow reflexed margin, generally a few quite obscure transverse wrinkles on the disc, posterior angles quite rounded off, and an extremely obscure longitudinal impression on either side near the base. The elytra are just twice the length of the thorax, and are less than half again as long as together wide, their length being to their width as eleven to eight; across their shoulders they are (compared with their greatest width) as five to eight. Their anterior margin is but little emarginate; the thickened humeral portion of the elytral margin erect but feeble, the shoulders almost rounded in outline, sides gently

arched, and reflexed margins narrow. Their surface is regularly convex, shining, and quite devoid of sculpture, except the following on each, viz.:—On the disc a large puncture near the humeral angle, and another not far from the apex; on the front margin two or three punctures placed close together; along the lateral margin a row of from 18 to 20 punctures. On the anterior tibiæ the exterior ridge has four teeth above the apical large teeth, none of which are visible from a point perpendicularly above the upper surface of the tibia, and the topmost is in many examples so minute as to require for its detection careful examination with a strong lens; the inferior ridge bears six or seven fairly sharp and strong teeth, the lowest of which is placed some distance from the apex of the tibia, being a little further off from it than is the front base of the upper of the two large apical teeth. Length, 22-25 mm.; width,  $7\frac{1}{4}$ -8 mm.

I have the following forms which at present must be regarded as varieties of *C. anthracinum*. Although one or two of them may very possibly prove to be distinct closely allied species, I have not yet discovered any satisfactory character on which to separate them:—

A. Much smaller than the type. Length, 17-20 mm. The front tibiæ are reddish; there are never more than six teeth on the inferior ridge of the same, and I have not been able to detect any trace of a fourth (topmost) tooth on the exterior ridge. This insect I have never seen except from Port Lincoln. It varies in colour as the type.

B. Larger than the type; measures  $26\frac{1}{2}$  mm. The sides of the elytra appear a little straighter, and these organs are decidedly more than twice the length of the thorax. I possess a single specimen taken in South Australia, but I know not *exactly* where. The violet bordering of its elytra is scarcely discernible.

Besides the above I have a specimen in which the anterior large puncture is exceptionally close to the shoulder on one elytron, a specimen in which it is altogether wanting on one elytron, and several in which there are faint appearances of a system of wavy longitudinal lines scratched on the elytra.

I am not able to say whether any of these last-named forms are identical with *C. cyanipenne*, MacL. Judging by the brief descriptions of that insect and *C. anthracinum*, I should think it quite possible that the form I have called var. A is what Mr. Macleay described under the name *cyanipenne*, but Mr. Macleay himself tells me it is his *anthracinum*. To confuse matters still more I have received the name *cyanipenne* from Europe for one of the large forms described above, *cyanipenne* being, according to the original description, "of less size (than *C. anthra-*

*cinum* and *C. ebeninum*) and more brilliancy." On the whole I am led to the conclusion, with a long series of specimens before me, that *anthracinum*, Mael., is a species which varies greatly in size and colouring, and also a little in respect of the depth and curvature of the frontal foveæ.

*C. inconspicuum*, sp. nov. Nitidum; sat angustum; subdepressum; nigrum; prothorace elytrisq; violaceo-marginatis; capite minus transverso; sulcis longitudinalibus profundis, antice fortiter postice parum divergentibus, postice foveâ obscurâ transversâ conjunctis; antennis sat gracilibus; prothorace vix tertiâ parte latiori quam longiori, canaliculato, tenuiter marginato, basi utrinque vix evidenter impresso, antice late leviter emarginato, postice haud lobato, lateribus parum rotundatis postice fortiter angustatis, angulis posticis rotundato-obtusis, basi subtruncata; elytris dimidio longioribus quam conjunctim latioribus, prothorace paullo plus duplo longioribus nonnihil latioribus, antice minus angustatis, tenuiter marginatis, obscure seriatis punctulatis, interstitiis sparsim subtiliter punctulatis, antice posticeque bipunctatis, antice subtruncatis, humeris reflexis parum prominulis, lateribus minus rotundatis; tibiis anticis externe bidentatis.\* Long., 20 mm.; lat.,  $6\frac{3}{4}$  mm.

This insect is of very average proportions by measurement, although the slightness of the curvature of the sides of the elytra give it a rather elongate appearance. The sculpture of the elytra, though very faint, is highly complicated, consisting of a system of fine sparing puncturation rather unevenly distributed, thinly interspersed with short transverse scratches, and traversed by about seven longitudinal rows of larger (but not deeper) punctures placed close together in the rows, and failing altogether near the base and apex. On the anterior tibiæ the exterior ridge seems to have only three teeth above the apical large teeth, although (my specimen being an abraded one) it is probable that the identification of some rudiment of a fourth tooth is prevented merely by the loss of its seta. The apex of the tooth next above the large apical ones is scarcely invisible when the tibiæ is looked at from a point perpendicularly above its upper face. The inferior ridge has seven well-defined teeth commencing well back from the apex of the tibia. The tibial structure does not seem to differ from that of

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\* I continue to characterise the tibiæ in the accustomed language, but it must be remembered that I mean by "bidentatæ," having all the teeth of the exterior ridge above the apical large ones (and by "tridentatæ" having all but the lowest of the same) invisible when the tibia is viewed from a point perpendicularly above its upper surface.

*C. anthracinum*, MacI., except in the lowest tooth of the exterior ridge being less concealed under the tibia. I think, on the whole, that the alliance of this insect is with *C. anthracinum*, MacI., its head and thorax, as well as its anterior tibiæ, being formed very similarly, but the thorax is less transverse, and has the posterior converging portion of its sides non-sinuate. The thickened humeral portion of the elytral margin is erect.

I have a single specimen from the neighbourhood of Fowler's Bay.

*C. lævigatum*, MacI. This and *C. anthracinum*, MacI., are, I feel satisfied, the only species of *Carenum* that can rightly be called common and widely distributed in South Australia, this being the less common of the two so far as I can judge, nor have I evidence of its being so widely distributed. I have it, or have seen it, from Port Lincoln, Moonta, Wallaroo, and near Adelaide, but not from the far west, though the meagreness of the collections that have come under my notice from Fowler's Bay and Eucla prevent the evidence from being more than negative. As I am not aware of its having been described more fully than in the comparatively brief original notice from the pen of Mr. Macleay, the following detailed description will not be out of place:—

The colour is scarcely different from that of *C. anthracinum*, MacI., in any respect except that there is often a little more tendency of the marginal violet tint to suffuse the anterior portion of the elytra. On the head the frontal furrows are deep and well defined, diverging from the front of the forehead strongly forward and gently (in some examples scarcely) backward, their posterior limit being quite or nearly level with the back of the eye; in many examples the foveæ are a little turned round posteriorly towards the eye. I have even one example in which the left fovea is evidently more bent than that on the right, and they are always united behind by a vague shallow arched impression that is scarcely perceptibly continued towards the sides of the head, although in some examples there are vague indications of a curved continuation of the line of the foveæ in the direction of the hind corners of the head. The thorax at its widest part (which is about the middle) is half again as wide as its greatest length (*i.e.*, as seven to four and two-thirds), is widely marginate in front with the anterior angles a little produced; the reflexed margins are moderately broad; the sides are rounded rather evenly in their anterior two-thirds, behind which they converge with a gentle sinuation to the base, which is also sinuate. There cannot be said to be posterior angles, inasmuch as the basal third of the thorax is outlined by a tri-sinuate curve, of which the middle sinuation is a little stronger than the others. The central channel of the

thorax does not very nearly touch the anterior margin, but nearly reaches the base, the flattened transverse basal space being very narrow. On either side of the central channel at the base is a fairly defined oblique elongate impression. The elytra are more than twice the length of the thorax (being as eleven to four and two-thirds), but they are not wider than it; across their shoulders they are (to their greatest width) as four and a half to seven; their front margin is very little emarginate, and their anterior declivity very little hollowed out. The thickened humeral portion of the elytral margin is very small, and is not erect, but laid back flat on the surface of the elytron; the sides are gently arched, and the reflexed margins are not particularly narrow; the surface is regularly convex, moderately shining, and quite devoid of sculpture (some examples have the faintest possible indication of wavy longitudinal lines), except the following on each, viz., on the disc a large puncture not far from the apex, a row all across the anterior declivity of about six smallish punctures, along the lateral margin a row of from eighteen to twenty punctures. On the anterior tibiæ the four teeth of the exterior ridge are all well-defined, of which the lowest is distinctly, and the next faintly discernible from a point perpendicularly above the upper face of the tibia; the inferior ridge has nine well-defined teeth commencing well back from the apex of the tibia, but scarcely behind the front base of the upper of the two large apical teeth. Length, 21-27 mm.; width, 7-9 mm.

This species does not seem to vary much except in respect of size.

*C. fugitivum*, sp. nov. Nitidum; violaceo-nigrum; prothorace elytrisque late cæruleo-marginatis; capite transverso; sulcis longitudinalibus profundis, antice fortiter postice leviter divergentibus, postice fortiter collum versus curvatis, ante partem postremam lineâ curvatâ fortiter conjunctis; antennis sat robustis; prothorace dimidia parte latiori quam longiori, canaliculato, marginato, basi utrinque sat evidenter oblique impresso, antice late emarginato, lateribus antice leviter rotundatis postice sinuatis basi sat fortiter sinuatis, angulis posticis vix perspicuis; elytris vix dimidio longioribus quam conjunctim latioribus, prothorace paullo plus duplo longioribus nonnihil latioribus, antice minus angustatis subtruncatis, marginatis, postice bipunctatis, humeris subrotundatis, lateribus sat fortiter arcuatis; tibiis anticis externe bidentatis. Long., 20 mm.; lat.,  $7\frac{1}{2}$  mm.

This species is allied to *C. lævigatum*, Macf. It differs in colour, the thorax and elytra having a bright blue border and

the whole surface of the latter being more or less violaceous, very brightly so along the front. The frontal canals are very distinct, also, from those of any specimen of *C. lævigatum* that I have seen; from the front of the forehead they diverge forward very strongly (as usual in *Carenum*), and backward only moderately at first; they are very deep and run back pretty evenly to about the level of the back of the eye, and there they curve outward and run obliquely for a short distance towards the sides of the neck with scarcely any diminution of depth, finally merging into a shallow ill-defined depression which fades away before reaching the margin; just at the point where they begin to curve outward they are connected, not by a vague depression, but by a clearly cut fine arched line. The thorax differs very little from that of *lævigatum* except that the base is less strongly sinuate, but the proportion of the thorax and elytra is different, the former being distinctly narrower than the latter (as seven to seven three-quarters) whereas in all the *lævigatum* I have measured there is no difference between those parts in width. The thickened part of the humeral margin of the elytra is turned over exactly as in *lævigatum*, but is smaller, otherwise the margins are very similar; on the anterior tibiæ the lowest tooth in the exterior ridge above the apical large ones is less visible from a point perpendicular to the upper surface of the tibia than in *lævigatum*, and the topmost tooth is less defined, while the inferior ridge has only seven teeth, which commence at about the same place as in *lævigatum*. I took a single specimen of this insect at Wallaroo.

*C. rugatum*, sp. nov. Nitidum; subelongatum; subdepressum; nigrum; prothorace elytrisque violaceo marginatis; capite sat transverso, sulcis longitudinalibus profundis antice posticeque divergentibus postice fovea obscura transversa conjunctis; antennis gracilibus; prothorace dimidio latiore quam longiore, canaliculato, marginato, basi obsolete bi-impresso, antice late emarginato, postice lobato, lateribus rotundatis, angulis posticis vix evidenter notatis; elytris ovalibus prothorace parum latioribus, subparallelis, antice parum angustatis, marginatis, striis undulatis tenuiter notatis, postice bipunctatis, humeris reflexis subacutis; tibiis anticis externe tridentatis. Long., 22 mm.; lat., 7 mm.

A well-marked species. Its elongate elytra (half again as long as together wide), somewhat concave dorsally, point to the probability of its being allied to *C. subplanatum*, Bates, which, however, has bidentate anterior tibiæ and unsculptured elytra. The frontal foveæ are well defined, and diverge

gently backward and very strongly forward from the front of the forehead. The width of the thorax is to the length as seven to four and a half, and its posterior angles, though very little marked, are not quite rounded off. The surface of the elytra is slightly dulled by an excessively fine system of puncturation, which becomes visible under a strong lens, and it is traversed longitudinally by a series of about half a dozen fine wavy scratches or wrinkles; there are also some short transverse wrinkles, especially about the middle of the disc; the length of the elytra is considerably more than twice that of the thorax, and the thickened humeral portion is erect; on the anterior tibiæ the exterior ridge has (above the apical two large teeth) four smaller ones, of which the lowest is entirely visible when the tibiæ is looked at from perpendicularly above its upper surface, and the topmost is more strongly marked than is usual in the genus; on the inferior ridge there are nine strong teeth, which commence so close to the front of the apical plate that the anterior projection of the plate appears to be merely one of the series of teeth, which thus seem to number ten.

I possess a single specimen; it is from Fowler's Bay.

*C. cupreo-marginatum*, sp. nov. Nitidum; læve; nigrum; elytris obscure cupreo-marginatis; capite sat transverso, sulcis longitudinalibus parallelis antice vix evidenter impressis; antennis gracilibus; prothorace fere duplo latiore quam longiore, marginato, canaliculato, basi leviter biimpresso, pone medium quam antice latiori, antice late emarginato, postice sat anguste lobato, angulis posticis rotundatis; elytris ovatis, prothorace angustioribus, antice paulo angustatis vix excavatis, marginatis, obsolete subtiliter seriatim punctulatis, punctis 2 subapicalibus majoribus instructis, humeris reflexis vix prominulis; tibiis anticis tridentatis; subtus nigrum. Long., 22 mm.; lat.,  $8\frac{1}{2}$  mm.

This is another very distinct species, which Mr. Macleay would probably place in his new genus *Calliscapterus*, although the width of the elytra in front give it a facies very different from that of *C. Odewahni*, Cast., &c. Its colour is peculiar, the black of the upper surface having a slight coppery tone (which becomes quite well defined in the rather broad marginal furrows of the elytra, much less on the thoracic margins) very different from the genuine black of the underside. The frontal furrows commence a little in front of the level of the back of the eye, and run forward parallel to each other to about the usual distance from the labrum, but the portion diverging apically is very faint. A faintly-impressed transverse groove runs completely across the back of the head. The width of the thorax is very

nearly twice the length (being as eight and a half to four and a half), and the greatest width is very near the base. The basal lobe of the thorax is rather narrow, very short, and slightly raised up and emarginate in the middle. The elytra are just a hair's breadth narrower at their widest part than the thorax. There are about seven rows of very fine and faint punctures on each elytron, and the sub-apical larger puncture on each is of only moderate size. The thickened humeral portion of the elytral margin is erect, and very abrupt. There are about seven punctures placed confusedly on the anterior margin of each elytron, and each lateral marginal row contains about twenty-two punctures, which, however, become faint and difficult to count near the apex. The exterior ridge of the anterior tibiæ has four teeth above the apical two large ones, of which the lowest is distinctly, and the next scarcely visible when the tibia is viewed from a point perpendicular to the upper surface of the tibia. while the topmost is hardly discoverable except by its seta; the inferior ridge has nine teeth, commencing some distance back from the apex of the tibia.

I have a single specimen in my collection. It was taken at Fowler's Bay.

*C. Macleayi*, sp. nov. Nitidum; læve; nigrum; pedibus piceis antennis palpisque ferrugineis, prothorace virid-marginato, elytris violaceo et viridi micantibus, splendide viridi marginatis; capite fortiter transverso, sulcis longitudinalibus profunde impressis haud curvatis postice anticeque divergentibus, antennis gracilibus sat elongatis; prothorace dimidio latiore quam longiore, sat anguste marginato, canaliculato, basi biimpresso antice subtruncato, postice late sublobato, angulis posticis obtusis subreflexis; elytris ovatis antice paulo angustatis, sat late marginatis, antice medio subexcavatis, secundum suturam depressis obsolete seriatim foveolatis (? exemplo deformato), antice et disco lævibus, marginibus lateralibus seriatim punctulatis, humeris reflexis parum prominulis; \*tibiis anticis tridentatis; subtus nigrum, elytrorum epipleuris splendide micantibus. Long., 17 mm.; lat., 6 mm.

This is an extremely distinct species. In different lights the elytra display all shades of blue, violet, and green. The absence of large discal elytral punctures in conjunction with the visibility of three external spines on the front tibiæ seems to distinguish it from all other species of the genus. It seems to occupy an in-

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\*On the right tibia of the specimen described one of the teeth in the inferior ridge is bifid, so that there appear to be ten teeth, but the accidental character of this formation is evident, as the additional pseudo-tooth bears no seta.

intermediate position between *Carenum* and Mr. Macleay's new genus *Calliscapterus*. The following are strongly marked characters in this insect, viz., the very transverse head and slender antennæ, the narrow lateral margin of the thorax suddenly dilated and turned upwards at the hind angles, the peculiar basal area of the elytra, the middle portion only of which is abruptly declivous and quite devoid of puncturation, and the remarkable series of rather large faintly-impressed pits along either side of the suture, which, however, may possibly be a deformity, more particularly as they are more strongly defined on the right than on the left elytron. On the anterior tibiæ the external ridge has four teeth above the apical two large ones, of which the lowest is visible when the tibia is viewed from a point perpendicular to its upper surface, the topmost tooth being a mere indentation scarcely noticeable but by its seta; the inferior ridge bears eight blunt teeth, commencing well back from the tarsus. The thickened humeral portion of the elytral margin is erect.

I think this species must resemble *C. politum*, Westw., which, however, would seem to be a broader insect with only two visible external teeth on the front tibiæ, and the elytra differently coloured.

I found a single specimen under a log of wood at Wallaroo in September, 1886.

#### DTISCIDÆ.

##### HYDROCANTHUS.

*H. Waterhousei*, sp. nov. Oblongo-ovalis, posterius acuminatus, transversim sat convexus, minus latus, nitidus, testaceo-rufus, elytris antice seriatim obscure, postice fortius confuse, punctulatis; prosterni pectorisque medio et coxarum laminis fortius minus crebre punctulatis. Long., 6 mm.

This species is entirely different in colour from *H. Australiæ*, Wehncke (the only Australian *Hydrocanthus* hitherto described), and seems also to differ considerably in respect of its puncturation. Each elytron has about four rows of lightly impressed small punctures commencing close to the base and extending about three quarters the distance to the apex. These rows contain about 24 punctures each, which are placed at irregular intervals, three or four being close together and followed by a space in which the rows seem interrupted, then a few more punctures, and so on. The apical quarter of the elytra is occupied by some sparing confused puncturation of a rather coarser character. In addition to the above a strong Coddington lens reveals a much finer system of punctures spread tolerably evenly over the surface. The coarser puncturation of the apical area extends a little forward on the

elytra along the sutural and marginal portions. In order to define the nature of the puncturation of this insect it may be noted that its largest and coarsest punctures are very similar to the finest of the punctures (occurring near the base) on the elytra of the widely distributed European *Noterus clavicornis*, De Geer. The eighth joint of the antennæ is considerably dilated. The condition of the specimen before me, apparently a male, does not allow of a satisfactory examination of the tarsi.

A single specimen, from the collection of Mr. F. Waterhouse, is in the South Australian Museum.

### STAPHYLINIDÆ.

#### QUEDIUS.

*Q. ferox*, sp. nov. Niger; nitidus; antennis palpisque piceis, tarsis piceo-rufis, elytris subæneis; antennarum articulo 3° 4° paullo longiore, 4-10 subæqualibus minus elongatis; capite fortiter transverso (dimidiâ parte latiori quam longiori), utrinque punctis 3 (2 in margine ipso oculi), 2 aliis utrinque basi, aliis prope angulos posticos subtilissimis, notato; prothorace capite quarta parte latiori, quarta parte latiori quam longiori, tertia parte disci antica punctis 2 sat approximatis notato, antice minus angustato, marginibus seriatim punctulatis; elytris prothorace fere tertia parte longioribus, quarta parte latioribus, cum scutello fortius sat crebre punctulatis; abdomine squamose nec crebre punctulato. Long,  $6\frac{3}{4}$  mm.

This is a very distinct species of *Quedius*. Its excessively transverse head, which is a good deal narrowed behind, long antennæ, in which none of the joints are distinctly transverse, and rather strongly closely punctured elytra form a combination of characters that differentiate it from all its congeners of similar size and colour.

I have a single specimen taken near Adelaide in flood refuse.

#### LATHROBIUM.

*L. exiguum*, sp. nov. Sat nitidum; piceum; antennis (basi pallida excepta), palpis, mandibulis, pedibusque sordide testaceis; capite a basi ad oculos parum angustato, basi truncato, sparsim fortiter (disco lævi excepto) punctulato; prothorace capite vix angustiori, tertiâ parte longiori quam latiori, capite vix subtilius disco lineatim a lateribus confuse punctulato, lateribus subparallelis; elytris prothorace fere dimidia parte longioribus, subtilius lineatim punctulatis; abdomine subtilissime crebre punctulato. Long.,  $3\text{--}3\frac{1}{4}$  mm.

Maris segmento ventrali 6° depresso tuberculo basali instructo, segmento 7° apice breviter arcuatim inciso.

The smallest species of the genus known to me. A few specimens have occurred in flood refuse near the Grange.

#### CRYPTOBIMUM.

The recent acquisition of a number of specimens belonging to this genus from various parts of South Australia has enabled me to arrive at a satisfactory conclusion concerning one or two species that I have not hitherto felt justified in dealing with, and has revealed errors into which I had fallen concerning two species. In a paper entitled "Descriptions of Twenty New Species of South Australian Coleoptera," which I read before the Royal Society last December, I described a new species of the genus under the name *C. delicatulum*, and the examination of more specimens has satisfied me that at that time I confused two closely allied species under the name. I was in error also in my supposed identification of *C. fractum*, Fauv., which I alluded to in my remarks on *C. delicatulum*; the insect I took for that species, of which I had not seen the female, being distinct from it. The last-named error does not materially affect the correctness of what I wrote, but inasmuch as I incorporated into my description of *C. delicatulum* the mention of a variability in colour and sculpture, which was really founded on another insect, I think that it will be well in this present paper to re-describe it.

It is worthy of note that, so far as I have observed, the Australian species attributed to this genus differ structurally from the European *C. fracticorne*, Payk., inasmuch as the lateral declivous portion of the elytra is larger, is more turned under the body, and has its margin sinuate, while the metathoracic episterna are distinctly visible along their whole length.

Besides *C. delicatulum* there have been described up to the present time four Australian species of *Cryptobium*, two of which are much larger species than any that I have seen from South Australia. Of the remaining two, *C. apicale*, MacL., is distinguished (from all those I am about to describe) *inter alia* by its colour, the elytra being red, with the base black, and the sixth segment of the hind body being red. *C. fractum*, Fauv. (from Melbourne), was unfortunately described from a female only, the antennæ of which were broken off, so that it is impossible to feel very certain regarding it; but it would seem to resemble in colour my *C. varicorne*, differing, however, from the female of that insect in several particulars, especially in the sparing puncturation of its head.

As the following species are all closely allied *inter se* the following table may be useful to assist in their identification:—

- |  |     |     |     |   |
|--|-----|-----|-----|---|
| 1. Antennæ unicolorous, pallid                     | ... | ... | ... | 2 |
| Antennæ pitchy, with the base and apex testaceous. |     |     |     |   |
| <i>C. varicorne.</i>                               |     |     |     |   |

2. Prothorax gently narrowed from the apex to the base ... 3  
Sides of prothorax parallel ... *C. Adelaidæ*.
3. Second and third joints of antennæ scarcely differing in  
length; joints, six to ten, scarcely longer than wide.  
*C. delicatulum*.
4. Third joint of antennæ evidently longer than second;  
joints, six to ten, longer than wide ... *C. elegans*.

*C. varicorne*, sp. nov. (mas.) Nitidum; sat robustum; nigrum; palpis, mandibulis, elytris (præter basin infuscatam) nonnullis exemplis, et antennarum basi apiceque rufis; pedibus (tibiis infuscatissimis exceptis) testaceis; antennarum articulo 1° maxime elongato, ceteris multo minoribus, 2° et 3° subæqualibus, 5°-10° haud longioribus quam latoribus; capite subquadrato, subæqualiter (disco lævi excepto) sparsim sat fortiter punctulato, fronte vix depressa; prothorace subcylindrico, tertiâ parte longiori quam latiori, capite quintâ parte angustiori, subseriatim punctulato, spatio medio longitudinali lato alteroque utrinque angustiori lævibus; elytris prothoraci longitudine æqualibus, capite vix latoribus, crasse nec profunde nec crebre subseriatim punctulatis; abdomine subtiliter nec crebre punctulato, segmentis apicalibus 2 (nonnullis exemplis) apice piceolis; segmento ventrali penultimo postice medio fortiter depresso, spatio depresso lævi postice emarginato antice tuberculo instructo segmento ventrali ultimo longitudinaliter depresso, postice profunde triangulariter inciso. Long., 7-7½ mm.

Fem. capite postice confluentem rugoso-punctulato, abdomine supra crassius (quam maris) punctulato, segmentis ventralibus simplicibus.

I do not think that the mutilated specimen on which M. Fauvel founded his *C. fractum* can be identical with the above insect, although it is probably allied to it. The following appear to be points of difference:—*Fractum* has the third joint of the antennæ very evidently longer than the second, the thorax evenly punctured outside the smooth discal space, the elytra longer than the thorax and wider than the head, while in *varicorne* the second and third joints of the antennæ scarcely differ from each other in length, the puncturation of the thorax runs in tolerably regular lines separated by smooth spaces, and the elytra are (by measurement under a lens) equal in width to the head and in length to the thorax. Supposing the single female specimen in my possession to be not abnormally punctured (which it is just possible it may be), the puncturation of its head is totally different from that of *fractum*.

I have taken this species at Port Lincoln.

*C. Adelaideæ*, sp. nov. Minus robustum; nitidum; nigrum; antennis, palpis, mandibulis et pedibus (tibiis infuscatis exceptis) testaceis; antennarum articulo 1° maxime elongato, ceteris multo minoribus, 2° et 3° subæqualibus, 6°-10° haud longioribus quam latioribus; capite longiore quam latiore, sat æqualiter (disco lævi excepto) sparsim fortiter punctulato, fronte vix depressa; prothorace subcylindrico, plus tertiâ parte longiore quam latiore, capite parum angustiori, subseriatim punctulato, spatio medio longitudinali lato alteroque utrinque angustiori lævibus; elytris prothorace paullo brevioribus, capiti latitudine æqualibus, disco crasse subseriatim lateribus subtiliter confuse punctulatis; abdomine subtiliter nec crebre punctulato, segmentis apicalibus 2 apice piceolis. Long.,  $4\frac{3}{4}$  mm.

Mas. latet.

The distinctive characters of this small species lie in its antennæ, with its second and third joints not or scarcely differing in length, while the five joints preceding the apical one are transverse or nearly so, in its parallel-sided thorax, and elytra a little shorter than the thorax. I think its nearest ally is *C. varicorne*, which it resembles in being of more robust build than the species that follow, though it differs widely in respect of size and colour, and has shorter elytra.

I possess a single specimen (a female), which was taken in the neighbourhood of Adelaide.

*C. delicatulum*, mihi. Sat angustum; nitidum; nigrum; antennis, palpis, mandibulis, pedibusque testaceis; antennarum articulo 1° sat elongato, ceteris multo minoribus, 2° et 3° subæqualibus, 7-10 vix longioribus quam latioribus; capite longiori quam latiori sat æqualiter sparsim fortiter punctulato; prothorace fere duplo longiore quam latiore, postice angustato, capite angustiori, subtiliter subseriatim punctulato, spatio medio longitudinali lato alteroque utrinque angustiori lævibus; elytris capiti latitudine prothoraci vix longitudine æqualibus, disco crasse obsolete lateribus vix evidenter punctulatis; abdomine obsolete nec crebre punctulatis, segmentis apicalibus 2 apice piceolis. Long.,  $5\frac{1}{4}$  mm.

Mas. latet.

This species is closely allied to *C. Adelaideæ*, with which until lately I confused it. Its facies is narrower and more slender, its thorax distinctly longer in proportion to the width, and evidently narrowed backwards from the front to the base; the disc of the elytra is much more faintly (though scarcely less coarsely) punctured, and the punctures do not run in traceable

rows; also the punctures on the thorax are finer, and the head is more elongate and depressed, without any defined punctureless space (in *C. Adelaide* a distinct though small central space is devoid of puncturation). The elytra by measurement are scarcely so long as the thorax. [It should be noted that (owing no doubt to their greater width) they appear to the eye considerably shorter in proportion than they really are.] An unfortunate accident caused the destruction of the male specimen alluded to in my former description, and I know not to which species it appertained.

Port Lincoln.

*C. elegans*, sp. nov. Gracile; nitidum; capite prothorace et elytris (nonnullis exemplis) plus minusve piceis vel rufopiceis, antennis palpis mandibulis pedibusque testaceis antennarum articulo 1° maxime elongato, ceteris multo minoribus (tamen sat longioribus quam latioribus), 3° 2° evidenter longiori, capite minus elongato, sat æqualiter (disco fere lævi excepto) sparsim sat fortiter punctulato; prothorace tertiâ parte longiore quam latiore, postice angustato, capite minus angustiori, disco seriatim lateribus confuse punctulatis, spatio medio longitudinali lato alteroque utrinque angustiori lævibus; elytris capite sat latioribus prothorace sat longioribus, crasse leviter sat crebre vix seriatim punctulatis; abdomine obsolete sat crebre punctulato, segmentis 6-7 piceolis. Long.,  $6\frac{1}{4}$ -7 mm.

Maris segmento apicali subtus late profunde inciso.

This species is very probably allied to *C. fractum*, Fauv., which it resembles in having the third joint of the antennæ longer than the second, but besides difference in colour (the tibiæ and palpi are quite clear testaceous) it has the sub-apical joints of the antennæ exceptionally elongate, and I do not think so keen an observer as M. Fauvel could have failed to notice the evident contraction backwards of the thorax, of which there is no mention in the description of *C. fractum*.

The colour of the head, thorax, and elytra vary considerably; in the darkest specimen I have seen the head and elytra are nearly black, and the thorax is of a pitchy colour; in the lightest all these segments are dull pitchy red with the suture still paler.

The apical ventral segment of the male is very deeply incised, the sides of the incision nearly parallel and meeting behind not in an angle but in a gentle curve.

I have taken this insect several times near Port Lincoln, and I also possess a specimen of which I have no record of capture, but I think it was taken in the Adelaide district.

## SCOPEUS.

*S. latebricola*, sp. nov. Sublinearis; minus depressus; pube subtili sericans; subtilissime punctulatus; piceus; antennis (basi apiceque pallidis exceptis) piceo-testaceis; palpis (apice piceo excepto) pedibusque testaceis; capite subquadrato longiore quam latiore; prothorace longiori quam latiori, capite angustiori, postice minus angustato, lateribus minus rotundatis; elytris capite vix latioribus, prothorace paullo longioribus; antennarum articulo 1° 2° et 3° conjunctis longitudine æquali, ceteris subæqualibus. Long., vix. 3 mm.

Mas. latet.

As I have only a single specimen of this small insect, it has not been practicable to examine the organs of the mouth satisfactorily, but it has all the facies of *Scopæus*, except that the hind margin of the elytra is not straight, but, taking the two elytra together, is gently emarginate. It differs from *S. ruficollis*, Fauv., *inter alia* in the colour of the thorax, and from *S. digitalis*, Fauv., in the colour of the antennæ and tibiæ, and in the sub-apical joints of the antennæ not being transverse, &c.

A single specimen occurred in flood refuse near the Grange.

## TENEBRIONIDÆ.

## ALPHITOBIVS.

*A. Mauritanicus*, Luc. I have not met with any record of the occurrence of this insect in Australia. I have a specimen of it, however, which was taken by Mr. J. J. East at Prospect. There can be little doubt that, like its congener, *A. diaperinus*, Panz., (which is recorded as Australian by Mr. Masters, of Sydney, and a South Australian specimen of which has been submitted to me lately by Mr. Rothe), this species has been introduced with merchandise into the colony.